

IN THE CLAIMS:

Please cancel claims 18 and 26.

Please amend claims 5 and 23 as follows:

1. (previously presented) An improved web cleaning apparatus, comprising:

a rotatable first web buffing roll;

a rotatable second web buffing roll adjacent to the first web buffing roll; and

a web passing between the first web buffing roll and the second web buffing roll,

wherein the improvement comprises:

each of the first and second web buffing rolls comprising:

a hollow core having:

an outer surface, and

stub shafts on which that web buffing roll rotates, an outer surface of each stub shaft engaging an inner surface of the hollow core, and

a jacket positioned tightly about the outer surface and clamped between opposed end caps to ends of the hollow core, the jacket having a soft outer surface having a profusion of protruding fibers.

2. (cancelled).

3. (cancelled).

4. (cancelled).

5. (currently amended) An improved web cleaning apparatus, comprising a rotatable web buffing roll adjacent to a web, the web buffing roll enclosed within a hood connected to a vacuum system, wherein the improvement comprises:

the web buffing roll comprising:

a hollow core having:  
a core surface, and  
stub shafts on which the web buffing roll rotates, and  
a jacket positioned tightly about the hollow core, the jacket being held to,  
but not bonded to, the core surface and having a soft outer surface having a profusion of  
outwardly projecting fibers, and  
wherein the web buffing roll is positioned relative to the web such that the  
profusion of outwardly protruding fibers do not contact the web.

6. (cancelled).

7. (cancelled).

8. (cancelled).

9. (previously presented) A method of cleaning a web using a web cleaning device  
comprising:

a rotatable first web buffing roll, comprising:

a hollow core having:

an outer surface, and

stub shafts on which the first web buffing roll rotates, an outer  
surface of each sub shaft engaging an inner surface of the hollow core, and

a jacket positioned tightly about the outer surface and clamped between  
opposed end caps to ends of the hollow core, the jacket having a outer surface and having a  
profusion of protruding fibers extending from the outer surface of the jacket, the jacket being  
continuous at least along an axis of the hollow core;

a rotatable second roll adjacent to the first web buffing roll, the web positioned

between the first web buffing roll and the second roll; and

at least one vacuum hood connected to a vacuum system, one vacuum hood associated with the first web buffing roll, the method comprising:

passing the web between the first web buffing roll and the second roll in a first direction, a first boundary layer of an ambient atmosphere moving with the web in the first direction;

rotating the first web buffing roll such that a portion of the first web buffing roll adjacent the web moves in a direction opposite the first direction, a second boundary layer of the ambient atmosphere moving with the first web buffing roll;

without contacting the web with the first web buffing roll, interacting at least with one of the protruding fibers or the second boundary layer with at least one of the web or the first boundary layer to transfer loose materials from at least one of the web or the first boundary layer into at least one of the second boundary layer or the jacket;

removing the transferred loose materials from at least one of the second boundary layer or the jacket using the at least one vacuum hood and vacuum system, comprising operating the first web buffing roll within the vacuum hood, while drawing a vacuum on the vacuum hood and rotating the first web buffing roll to produce an effective surface velocity of the first web buffing roll to clean the web.

10. (previously amended) The method of claim 9, wherein the the effective surface velocity of the first web buffing roll is at least approximately 60 fps.

11. (previously presented) The method of claim 9, further comprising replacing the jacket, comprising:

removing the first web buffing roll from the associated one of the at least one

vacuum hood;

removing the jacket from around the hollow core;

placing a new jacket around the hollow core;

shrinking the new jacket until the new jacket tightly engages the the outer surface of the hollow core;

developing a profusion of fibers extending from the new jacket;

placing the first web buffing roll within the associated one of the at least one vacuum hood;

drawing a vacuum on that vacuum hood and rotating the first web buffing roll;

contacting a surface of the web with the extending fibers to wear the extending fibers so that the extending fibers no longer frictionally engage the surface of the web.

12. (previously presented) A method of cleaning a surface of a web wherein the web is moving in a first direction, the method comprising:

rotating a roller at a surface velocity of at least about 60 feet per second in a direction opposite the first direction, the roller comprising:

a hollow core having:

an outer surface, and

stub shafts on which the roller rotates, an outer surface of each sub shaft engaging an inner surface of the hollow core; and

a jacket positioned tightly about the outer surface of the hollow core and clamped between opposed end caps to ends of the hollow core, the jacket having a outer surface and having a profusion of protruding fibers extending from the outer surface of the jacket, the jacket being continuous at least along an axis of the hollow core;

placing the the jacket in close tangential engagement to the surface of the web to allow the profusion of protruding fibers extending from the outer surface of the jacket to interact with a boundary layer carried along with the web to remove particles from at least one of the surface of the web or the boundary layer carried along with the web.

13. (previously presented) The improved web cleaning apparatus of claim 1, wherein, for each of the first and second web buffing rolls, the jacket extends continuously around the outer surface.

14. (previously presented) The improved web cleaning apparatus of claim 1, wherein, for each of the first and second web buffing rolls, an axial length of the hollow core is substantially greater than a diameter of the hollow core.

15. (previously presented) The improved web cleaning apparatus of claim 1, wherein, for each of the first and second web buffing rolls, that web buffing roll is positioned relative to the web such that the profusion of protruding fibers do not contact the web.

16. (previously presented) The improved web cleaning apparatus of claim 5, wherein the jacket extends continuously around the outer surface.

17. (previously presented) The improved web cleaning apparatus of claim 5, wherein an axial length of the hollow core is substantially greater than a diameter of the hollow core.

18. (cancelled).

19. (previously presented) An improved paper web cleaning apparatus, comprising:  
a rotatable first web buffing roll;  
a rotatable second web buffing roll adjacent to the first web buffing roll; and  
a web passing between the first web buffing roll and the second web buffing roll,  
wherein each of the first and second web buffing rolls comprise:

a hollow core having:  
a outer surface, and  
stub shafts on which that web buffing roll rotates, an outer surface  
of each stub shaft engaging an inner surface of the hollow core, and  
a jacket positioned tightly about the outer surface and clamped between  
opposed end caps to ends of the hollow core, the jacket having a soft outer surface and having a  
profusion of protruding fibers.

20. (previously presented) The improved web cleaning apparatus of claim 19, wherein,  
for each of the first and second web buffing rolls, the jacket extends continuously around the  
outer surface.

21. (previously presented) The improved web cleaning apparatus of claim 19, wherein,  
for each of the first and second web buffing rolls, an axial length of the hollow core is  
substantially greater than a diameter of the hollow core.

22. (previously presented) The improved web cleaning apparatus of claim 19, wherein,  
for each of the first and second web buffing rolls, that web buffing roll is positioned relative to  
the web such that the profusion of protruding fibers do not contact the web.

23. (currently amended) An improved web cleaning apparatus, comprising a rotatable  
web buffing roll adjacent to a web, the web buffing roll enclosed within a hood connected to a  
vacuum system and comprising:

a hollow core having:  
a core surface, and  
stub shafts on which the web buffing roll rotates, and  
a jacket positioned tightly about the hollow core, the jacket being held to, but not

bonded to, the core surface and having a soft outer surface having a profusion of outwardly projecting fibers;

wherein the web buffing roll is positioned relative to the web such that the profusion of outwardly protruding fibers do not contact the web.

24. (previously presented) The improved web cleaning apparatus of claim 23, wherein the jacket extends continuously around the outer surface.

25. (previously presented) The improved web cleaning apparatus of claim 23, wherein an axial length of the hollow core is substantially greater than a diameter of the hollow core.

26. (cancelled).

27. (previously presented) A method of cleaning a web using a web cleaning device comprising:

a rotatable first web buffing roll, comprising

a hollow core having:

an outer surface, and

stub shafts on which the first web buffing roll rotates, and

a jacket positioned tightly about the outer surface and clamped between opposed end caps to ends of the hollow core, the jacket having a outer surface and having a profusion of protruding fibers extending from the outer surface of the jacket, the jacket being continuous at least along an axis of the hollow core;

a rotatable second roll adjacent to the first web buffing roll, the web positioned between the first web buffing roll and the second roll; and

at least one hood connected to a vacuum system, at least one hood associated with the first web buffing roll, the method comprising:

passing the web between the first web buffing roll and the second roll in a first direction, a first boundary layer of an ambient atmosphere moving with the web in the first direction;

rotating the first web buffing roll such that a portion of the first web buffing roll adjacent the web moves in a direction opposite the first direction, a second boundary layer of the ambient atmosphere moving with the first web buffing roll;

interacting the protruding fibers with the first boundary layer to transfer loose materials from the web or first boundary layer into the second boundary layer or jacket;

removing the transferred loose materials from at least one of the second boundary layer and the jacket using the at least one hood and vacuum system.

28. (previously presented) A method of cleaning a web using a web cleaning device, comprising:

passing a web between a first web buffing roll and a second roll in a first direction, a first boundary layer of an ambient atmosphere moving with the web in the first direction, wherein:

the first web buffing roll is rotatable and comprises:

a hollow core having:

an outer surface, and

shafts on which the first web buffing roll rotates, an outer surface of each shaft engaging an inner surface of the hollow core, and

a jacket positioned tightly about the outer surface of the hollow core and clamped between opposed end caps to ends of the hollow core, the jacket having a outer surface and having a profusion of protruding fibers extending from the outer surface of the jacket, the



jacket being continuous at least along an axis of the hollow core, and

the web cleaning device includes at least one vacuum hood connected to a vacuum system, each vacuum hood associated with one of the first web buffing roll or the second roll;

rotating the first web buffing roll such that a portion of the first web buffing roll adjacent the web moves in a direction opposite the first direction, a second boundary layer of the ambient atmosphere moving with the first web buffing roll;

interacting at least one of the protruding fibers and the second boundary layer with the first boundary layer to transfer loose materials from at least one of the web or first boundary layer into at least one of the second boundary layer or jacket;

removing the transferred loose materials from at least one of the second boundary layer or the jacket using the at least one vacuum hood and vacuum system.